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## THE AMERICAN FRONTIER IN AN ANN ARBOR ATTIC

Three addresses delivered before the
Washtenaw County Historical Society
May, 1969, by

Robert M. Warner, Mary Jo Pugh,
and Michael J. Keebler

### I

Robert M. Warner, Ph.D.
Director of Michigan
Historical Collections

Until the present city hall was constructed in Ann Arbor, there was a large, rambling, unpretentious home covered with shingles standing on its site. It was the home of John Parker and before him of Franklin L. Parker and before him of Mr. and Mrs. Elijah William Morgan. One section of this old home was probably the oldest in the city at the time it was torn down to make room for the city hall. It was built in 1831 only seven years after Ann Arbor was founded.

In the attic of this old home, in fact scattered throughout it, were books, pamphlets, ledgers, letters, just about everything that goes to make up the raw material of history. This material was eventually transferred to the residence of Parker's niece, Mrs. Herbert Hicks. In 1969 Mr. and Mrs. Hicks presented these manuscripts and printed items to the Michigan Historical Collections of The University of Michigan.

The collection of papers is of extraordinary value for historical research and is most unusual in the fact that it reflects successive phases of American frontier history. The earliest documents originated in New England, Connecticut mostly. They were largely the papers of Lucy Stowe and date back to the early 1800's. Miss Stowe later moved to New York where she taught at Lowville Academy and met her husband to be, E. W. Morgan.

Morgan, a native New Yorker like so many of Michigan's early settlers, had visited Michigan territory in 1829, and decided to settle in the new town of Ann Arbor. In 1831, he brought his bride to the rustic frontier settlement which according to a remarkable detailed letter written by Mrs. Morgan consisted of: "ten stores...three taverns always full of travelers, a great number of mechanics, six attorneys, four clergymen, and two select schools." Despite the esistence of four regular religious services, she confided that Ann Arbor was "like almost all places that grow up suddenly, not distinguished for morality."

In the papers are manuscripts and documents reflecting pioneer institutions and society. There are papers of the Ann Arbor temperance society which note that the alcoholic consumption in Ann Arbor in 1830 was 13255 gallons. There is much correspondence about one of the favorite activities of the enterprising frontiersman, land speculation. Mr. Morgan was a donor of the original 40 acre campus of the University of Michigan and a rare prospectus found in the collection outlines the organization of "the Ann Arbor Land Company" which arranged the donation.

Of extraordinary importance is a 254 page manuscript. Its frayed pages, though discolored by age, are filled in splendid detail with the most candid accounts of the character, reliability and financial worth of Ann Arbor's business community in the 1840's and 1850's. It is a veritable Dun and Bradstreet on a local scale.

Mr. Michael Keebler who now teaches history in the public schools in Ypsilanti has used this document as the basis for his paper which follows.

A great surprise in the collection proved to be a set of papers relating in part to Ann Arbor and also exemplifying the frontier as it moved West, in this case to the Dakota territory in the 1860's. For some still unexplainable reasons, the papers of Ann Arbor Businessman George D. Hill were a part of this collection. Miss Mary Jo Pugh, Assistant Curator of the Michigan Historical Collections has used these manuscripts for her thoughtful description of the problems in the arrangement of a collection.

It is the archivists' and historians' delight to find such a collection as the Morgan-Parker-Hicks papers. It is so broad in scope both in time and content that it will yield rich rewards to successive generations of scholars studying our town, and the American frontier movement.

II

Mary Jo Pugh
Assistant Curator
Michigan Historical Collections

Processing the Hicks papers was an exciting, stimulating task. Like many collections which have been gathered at random during several generations of a family and lost in the attic for years, these papers were disorganized, scattered, and covered with a century's accumulation of dirt. Printed circulars, brochures, books, account books, ledgers, receipts, deeds, mortgages, scrapbooks, newspapers, clippings and correspondence arrived jumbled together in twenty boxes. This rich complex collection illustrated most of the problems faced by a manuscript curator and thus offered an invaluable learning experience for an aspiring archivist. Under the supervision of the Collections' professional staff I began preliminary sorting.

During this first step the papers were cleaned, flattened, and repaired. Ideal archival conditions include mechanical means to fumigate and clean the papers, but unfortunately these aids are not available at the Michigan Historical Collections. Most of the dirt was, therefore, transferred to my fingers.

A trained professional must undertake the preliminary unpacking and sorting, for fundamental questions must be answered at this point. The question of organization is most important. Archivists follow first the principle of provenance; that is, papers created by one person, family, agency, or organization are kept together. Original order is the second guiding principle of organization. The curator attempts to preserve or to recreate the original ordering scheme of the person, family, agency or organization responsible for the creation of the papers. In this way, the individual documents, sometimes meaningless by themselves, are kept in context and indicate to the historian the processes by which they were generated. Application of these two principles in the case of the Hicks collection proceeded in the following way.

Printed items were separated from manuscript materials. Unlike letters and manuscript records which have meaning only in conjunction with the mass of the papers, printed documents have an independent existence.

Secondly I divided the papers into three groups, the Morgan family papers, the Parker family papers and the George D. Hill papers. As in many collections, even those gathered at random over the years, the papers seemed to fall naturally into these three family collections. Materials created by one family had retained physical integrity. However, there were many items which could not be identified. The inclusion of the Hill papers with the Parker and Morgan papers is rather mysterious. We have found no written evidence to connect Hill with the other two families.

Within each of the three smaller family collections, documents again were logically divided into series. In the Hill collection, for example, financial records such as account books, ledgers and receipts fell into one group; personal correspondence into another. Since the original order had been lost, we decided to arrange the papers within each group in chronological order. A chronology is most often followed for personal papers since this is how people live their lives.

I then concentrated solely on the Hill collection and completed a detailed sorting, first by year, then by month, and finally by day. Thus the ordering scheme dictated by the principles of provenance and original order is very different from the traditional library classification scheme which arranges documents by subject matter.

In addition to deciding on an ordering scheme, the archivist must also face the problem of appraisal. Deciding what is to be saved and what should be destroyed is a problem which must be resolved either during the preliminary sorting or later in processing. This is the most delicate and professional of his tasks. The decision once made is irrevocable; the papers destroyed cannot be recreated. Yet, some documents are useless for historical research. All the historical agencies in the world will not be able to preserve every document, nor would the researcher be able to use such a mass of material. Cost considerations often play a role. Bulky papers with low information content may not be worthy of preservation. Yet I think most archivists, if they err, do so on the side of saving too much. With historical training and imagination, the archivist is able to approach the problem of appraisal with some confidence. What appears to be sand to a layman will often be gems to the historian. For example, seemingly useless farm receipts excited one researcher and proved invaluable for his study of the nature of farm labor in the 19th century.

After arrangement and appraisal the papers were placed in acid free folders and labeled with the name of the collection, the donor number, and a brief description of the contents.

To be useful to the historian, the organization and subject matter content of the collection must be captured in some sort of finding aid. Common finding aids are the calendar, which is composed of abstract of every letter, the inventory, which is a description of the contents of the collection and is ordinarily used for a bulky agency or organization papers, and the card catalog. For the Hill papers we used the catalog approach, supplemented by a description of the papers. As I read through the papers, I noted important correspondents, subjects, place names, etc. on slips of paper with the date of the letter or letters relevant to that topic. Standard reference tools and specialized Michigan and Dakota guides were used to identify correspondents. Among the important correspondents were Zachariah Chandler, senator from Michigan 1857-1875, a leader of the Republican forces in Congress; his important ally Ben Wade, senator from Ohio, 1851-1869; James M. Edmunds, Commissioner of the United States Land Office, 1861-1866; Henry Tappan, President of the University of Michigan, 1852-1863; Alpheus Felch, Governor of Michigan 1846-1847; and many men who played crucial roles in the early history of the Dakotas. Lumbering, real estate, Michigan politics, Ann Arbor life, frontier Dakota politics, and Dakota land disposition were among the topics covered in the papers.

During final cataloging, the correspondents and subjects with the dates of the letters associated with each topic were added to the main entry cards describing the papers as a whole.

Typical cards follow on Page 5.

2288

Chandler, Zachariah, 1813-1879.
AC Hill, George D. , 1820-
Aa/2 Papers, 1843-1866 and 1870-1876, of George D. Hill, Ann Arbor, Michigan businessman and Surveyor General of the Dakota Territory; contain correspondence, 1850-1866, papers, 1870-1876, and business papers, ledgers, receipts, etc.; include material concerning the Dakota Territory, the Free Homestead Association of Central New York, lumbering, the Michigan militia, the removal of President Tappan from the University of Michigan, and Republican politics. Correspondents include: Zachariah Chandler, Aug. 10, 1856, Mar. 18, 1857, July 24, 1857, Mar. 25, 1861, May 23, 1861, June 29, 1861, July 1861.

2288

Lumber and lumbering 1854-1857
AC Hill, George D. , 1820-
Aa/2 Papers, 1843-1866 and 1870-1876, of George D. Hill, Ann Arbor, Michigan businessman and Surveyor General of the Dakota Territory; contain correspondence, 1850-1866, papers, 1870-1876, and business papers, ledgers, receipts, etc.; include material concerning: lumber and lumbering 1854-1857.

Thus, the researcher finds filed under the name of his topic a brief description of each collection pertaining to his subject with the dates of the significant letters. In some of our larger collections over a hundred subjects have been cataloged. For the Hill collection we cataloged 41 subjects and correspondents.

While reading these papers, I became involved in the life of the enigmatic George D. Hill. Except for these papers little is known about him. He is not found in any of the standard Washtenaw or Michigan biographies. He appears in the 1850 census listed simply as a "gentleman" of $50,000 worth. He was born in Massachusetts in 1820 and came to Ann Arbor from Rochester, New York, when he was about 30. He established himself as a merchant in wheat, lumber, pork, and real estate. According to E.W. Morgan he dealt in "whatever profit is to be made in." Morgan concluded that "Hill is a perfect riddle and a difficult one to guess." At first Morgan felt that Hill showed good business talent but later, after one of his many projects failed, Morgan remarked, "Hill has not since his failure become any more honest or capable and the chances are strong against his continuing long in business."

The early correspondence to 1857 is mostly concerned with business affairs, especially his lumber interests. During this period he became interested in Michigan Republican politics. From 1858 to 1860 the papers reflect his political activity and his involvement in the Michigan militia. He was secretary of the Republican State Central Committee and brigadier general in the militia.

After the Republican victory in 1860, Hill's correspondence includes many letters from party workers asking for his assistance in seeking patronage positions and letters from Hill's superior in the hierarchy answering his own pleas for assistance. As U. S. Senator Zachariah Chandler's protege, Hill was rewarded with the position as Surveyor General of Dakota Territory, which was organized in 1861 and included the present states of North and South Dakota and most of Montana and Wyoming.

The correspondence from Dakota Territory, 1861-1865, comprises the bulk of the papers and is the most important part of the collection. As Surveyor-General, Hill was in the thick of Dakota political battles. His control of patronage and surveying contracts gave him considerable leverage. He was soon caught up in the political rivalries among the federal office holders which marked early Dakota politics. Politicians struggled over the control of patronage, the location of the territorial capitol, and the domination of the territorial legislature. The battles grew so intense that Congress threatened to re-annex Dakota to Nebraska. In many ways these early appointees were much like the carpet-baggers who swarmed South after the Civil War. They were ambitious men, drawn by the opportunities for power and financial advantage.

Hill was unpopular in Dakota and in 1864 was indicted for taking bribes. A warrant was issued for his arrest in Dakota at the same time he was in Washington obtaining another four year appointment. The papers are inconclusive on the bribery question, but hint at some irregularities. Two years later, in 1866, the correspondence ceases. From 1870-1876 there are a few papers from Ann Arbor, mostly concerned with Hill's business dealings and his personal problems. The Ann Arbor Courier of October 21, 1881 reports his death on October 17, 1881 in Yankton, South Dakota. The obituary states that he had been a lobbyist in Washington after his tenure as Dakota surveyor-general and attributes his death to "a passion for strong drink."

The George D. Hill papers offer a tantalizing and all-too-brief look into early Ann Arbor and Dakota. The collection proved an excellent learning opportunity for the archivist and will prove of research value for the historian.

## III

## REFLECTIONS OF COUNTY BUSINESSMEN IN THE MID-NINETEENTH CENTURY

BY:

MICHAEL J. KEEBLER

Teacher of History,
Ypsilanti Public Schools

Inhabitants of Washtenaw County will be interested in a document which gives insight into the character and business practices of County citizens during the 1840's and 1850's. The document titled "E.W. Morgan, Attorney, Commercial Reports'

Ledger" is part of the Morgan-Parker-Hicks Collection now located in the Michigan Historical Collections of the University of Michigan.

E. W. Morgan was originally from Watertown, New York, but moved to Ann Arbor in 1829, just five years after the founding of this town. While in Ann Arbor, Morgan held almost all political offices, was a prominent lawyer, and he donated land to the University of Michigan. At the time of the drafting of this ledger, Morgan was a partner of James Kingsley, and the two of them performed services in the area of law.

A commercial reports ledger may at first seem quite insignificant, but to a historian, it provides a first-hand account of Ann Arbor in the Mid-Nineteenth Century. Morgan's evaluation of Ann Arbor businessmen is also valuable to local persons who may be descendants of these early pioneers and wish to know more about their ancestors. Moreover, with a detailed study of this ledger, it is possible to compile enough information to compose a picture of the Ann Arbor community at that time.

The major questions that have to be answered revolved around Morgan's purpose in writing the ledger. Did Morgan gather and write the information independently? Who were the people in the ledger, and why were they chosen? Probably one of the ultimate questions is aimed at Morgan's accuracy. If he was inaccurate, then the ledger seems void of value to the study of the Nineteenth Century in Ann Arbor.

Morgan's coverage of the same 240 businessmen varies in detail and character. The more prominent businessmen certainly capture Morgan's interest and do not fail to escape his candid and personal evaluation. The author of the ledger seems most concerned with the businessman's age, character, marital status, family, previous home and business, and, most importantly, his credit rating. If Morgan felt that a man was very prudent, he would be labeled "saving". If the businessman was hard-nosed, Morgan might register the fact that he deals in "cash only". Original entries in the ledger from the later 1840's were usually followed by an evaluation two years later.

The most prominent businessmen in Ann Arbor in 1850, according to Morgan, included Hiram Becker, who sold dry goods, groceries and hardware. Becker dealt in "cash only" and was considered to be a "first rate businessman". Six other dry goods dealers were listed as "A No. 1" in Morgan's book. E. J. B. Crane, who had the "best corner in town", George Ward, who was "prompt", Evander T. Williams, David Godfrey and John Allen all seemed to impress Morgan with their business abilities.

After studying Morgan's evaluations and remarks, the question arises as to his accuracy in evaluating the businessmen. Based on accounts of Morgan as a person, it would be hard to doubt his credibility in reporting facts of each business. In order to double check his facts about the families, their assets and their businesses, the 1850 Washtenaw County Census was consulted. Morgan is invariably correct when it comes to age, description of business, and most importantly, the worth of the individual. Accounts written about personality traits of these businessmen of course are Morgan's own opinions; and it would be impossible to detect the accuracy of such statements.

Using this ledger, it then becomes a challenge to try to create a picture of Ann Arbor and Washtenaw County during the 1840's and 1850's. In 1851, the population of Ann Arbor was approximately 4,000 people. Farming was one of the area's main concerns, and Ann Arbor served the farming community by supplying goods, capital and other desired items. Important and necessary occupations in the town of Ann Arbor included dry goods dealers, who averaged assets of $4,000, leather goods and saddle dealers, wagon makers, and carpenters. Blacksmiths, gunsmiths and shoemakers usually attained assets worth $2,000. The big money lay in the hands of the attorneys, merchants and bankers. It was not uncommon to have them accumulate assets up to $10,000 and beyond. Farmers of both large and small means surrounded the town.

From Morgan's accounts and from the 1850 census, there is a generalization that can be made. Practically all of the businessmen who had large assets were originally from the New England area and tended to be forty years old or older. The rich farmers also fell into the above categories. The poorer people, on the other hand, were repeatedly immigrants from Germany. Ireland, Scotland or France. They were young and were usually small scale farmers or performed manual labor tasks.

Some of the Ann Arbor merchants with large assets included William Maynard--$50,000; Volney Chapin--$50,000; Edward Fuller--$20,000; William Sinclair--$30,000; and Morgan himself with $10,000 worth of assets. Prominent farmers included Nelson Cole from Connecticut at $50,000; C. Goodrich at $30,000; and Robert Geddes at $12,000.

Evaluation of E. W. Morgan's ledger involves much speculation. All evidence seems to point to the fact that it was written by one person. When the handwriting from the ledger is compared to examples of Morgan's handwriting, they appear identical. Therefore, it seems that Morgan personally wrote the entire ledger. Morgan also seems to use first-hand experience for the information within the ledger, as well as his personal opinions of each businessman.

Morgan's purpose in writing this ledger seems to be for his own use in giving advice to creditors or other businessmen. Evidence tends to show that Morgan kept the ledger in his personal belongings and did not sell the information of the ledger itself.

In conclusion, it seems that this ledger represents an individual attempt to evaluate the business community of Ann Arbor. Morgan was quite frank but fair to the people of the town and county. E. W. Morgan was a very prominent man in the Ann Arbor community. His attempt at composing biographical sketches of his neighbors seems interesting and valuable, as well as accurate. He has provided us with a fascinating document for the study of local history.

# AN ANN ARBORITE IN THE CALIFORNIA GOLD RUSH

(A summary by the secretary of the Society of a talk given by

PROFESSOR RUSSELL E. BIDLACK

before the Society on March 26, 1969)

Dr. Bidlack first expressed gratitude to Mr. Earl W. Martin and the late Mrs. Martin, from whose gift of letters and other documents the subject of the speech was taken. Mrs. Martin was a descendant of the Slatford-Bird family, early settlers of the Ann Arbor community. She died just after arranging the papers for presentation to the Michigan Historical collections. Mr. Martin and other members of the family were present at the meeting.

One of the first documents mentioned was the baptismal certificate of Job Slatford, dated January 24, 1796, County of Wilts, near the city of Bath, England. The son of James Slatford, a cloth worker, and Rachel Slatford. The boy was apprenticed in 1812 to Henry Brown of Trowbridge, a brazier. The paper of apprenticeship listed the obligations of both master and apprentice. The young man appears to have gotten permission to marry Hannah Biggin in 1816 in spite of the prohibition stated in the apprenticeship indenture. Their first child was born the following year.

Another document, dated April 23, 1825, indicates that Job became a member of a Society of Builders and Others which afforded its members some of the financial protection now furnished by union membership and insurance.

In spite of being reasonably successful in his trade, Job was attracted to the New World and sailed for New York in 1827 with his wife and four children. They lived in New York for five years, and there is correspondence indicating that all was not easy. One friend invited Job to return to England. But his mother, Hannah* Biggin, was having difficulties in England. In 1832 Job became a United States citizen. That same year the whole family moved to Ann Arbor. Job bought 80 acres of land and worked as a carpenter and bell hanger. The house he lived in was on the site now occupied by the Salvation Army Building.

John Biggin died soon after the Ann Arbor move. Job also lost seven of the thirteen children born to him and Hannah.

The 1840's brought very hard times. In 1848 came news of the gold in California. In 1851 Job and his son John decided to follow several other Ann Arborites to California. Before leaving, Job made a will leaving his farm to John and everything else to his wife.

Of the three possible routes to California : across the plains, around the Horn, and across the Isthmus of Panama. The Slatfords chose the Panama route. On April 10, 1851, John wrote to his mother of the illness and death of his father, Job, and his burial at sea. He sent a death certificate which eventually enabled his mother to collect some insurance.

*Confusion of names.

The correspondence between John and his mother during his California experience is unusually interesting and valuable because very few letters from Ann Arbor during the Gold Rush days were saved at the California end. They relate news of neighbors, family difficulties, and the eventual return of John to Ann Arbor, not richer financially, but much richer in experience.

One interesting item from the mother related how a neighbor tried to cheat her of rent for the farm land while making money from it by selling as paving stones for Detroit the very stones he complained of as a reason for not paying his rent. The mother found out his trick.

The documents mentioned in the talk were on display at the meeting. A more complete study of the material presented by the Martin family is expected to be published by Michigan Historical Collections in one of their bulletins.

## MICHIGAN AT THE CROSSROADS

(An address given before the Society September 25, 1969, by

Dr. C. Howard Ross
Previously delivered in July, 1969, before the Michigan State Medical Assistants' Society at their convention at the Grand Hotel, Mackinac Island.)

### I. From Quatorze to Ashdower

Louis the Sun King was the Father-of-All when the French explorers were at their zenith point. We in Washtenaw County brag that LaSalle paddled the Huron River in 1680, but Father Marquette was more than a decade ahead of him, somewhat farther North. Then, in our historical firmamemt we must not forget the Vikings, who outdid Columbus by about five centuries. Tradition and myth even find their traces in Minnesota.

The name of Ashdower is quoted to represent Johannes Jacobus Ashdower of later centuries who founded the trading post at the island of Michillimackinac in the earlier 1800's and then changed his name to John Jacob Astor. It was in his time and that of his son that Dr. William Beaumont flourished.

The Upper Peninsula of Michigan was penetrated by the first white men in 1622, searching for a water route to the Pacific. They were the explorers Brule and Grenoble, sent by Governor Champlain in 1610 to live with the Hurons about Georgian Bay, attempting to learn their language and customs. By canoe they reached the St. Mary's River and the rapids that tumbles the water from Lake Superior. Rumor has it that they explored Lake Superior before returning to Governor Champlain at Quebec in 1623. Brule whispered his findings to the lay brother Sayard of the Franciscan order, who quoted them in his "Histoire de Canada" in 1636. All of this happened while the English were still busy at Jamestown and plymouth Rock Colony.

Champlain commissioned other men, such as Nicolet in 1634, sort of a wild goose chaser, rushing for China. In preparation Nicolet possessed an elaborate silken

robe to impress the Great Khan of Tartary. The route is said to cover the Sault, the Straits of Mackinaw, and Green Bay. There the cultured Chinese faded into naked savages, who were much impressed by "the Robe" and the blast of pistols. The Master "carried thunder in both hands," and was declared to be a god. This explorer discovered the northern expanse of Lake Michigan and further portions of the Upper Peninsula. It was 35 years before any Frenchman visited the Lower Peninsula.

The hostile Iroquois prevented passage through the lower lakes to the West. The friendly Hurons pointed out the Ottawa River trip with portages to Lake Nipissing, French River, and Georgian Bay. There they had three choices:

(1) to the left and Huron villages at the bay's eastern extremity;
(2) to the right and traversing the North channel between Manitoulin Island and the North shore (a rugged passage), and on to the St. Mary's River; and
(3) to the West -- and Lake Michigan and Green Bay.

Tempting furs urged them on.

In 1641 the first missionaries arrived in Michigan; Fathers Jaques and Raymbault reached the foot of Lake Superior. They preached to the Chippewas, who were catching white fish. They named the foamy torrent the Sault de Ste. Marie. The Chippewas were then called Saulteurs. Our heroes returned to the Huron villages on Georgian Bay. Two decades passed before another missionary went to Michigan.

The governor wished to extend the territories of the King of France and to and to find the supposed water route to China. The missionaries were eager to save the souls of the savages. The merchants wanted only furs. All three aims led to new regions. The most intrepid fur merchant was Groseilliers, who was on Lake Superior in 1654 and returned loaded with riches in 1656. He was secretive and only dealt with his brother-in-law, Radisson. The latter described the turbulent charm of the Sault, the majestic splendor of the Pictured Rocks, and the deep gloom of the virgin forests. He fathered our scenic attractions.

Champlain was angry and punished them upon their return in 1660, and he ignored their "fur-links" to riches. The English were more receptive, and in 1670 founded the Hudson's Bay Company, which still exists.

Living in the woods with friendly Indians, the fur traders gloried in their hardihood and dangers, free from the restraint of royal officers. Fur profits reached 1000% on the investment, unless the market was glutted. Then the process became ruinous. The King's Company held a fur monopoly, however, and licensing was required from the governor. Some skipped the license and sold furs to the English and Dutch or to corrupt Quebec officials, with a profit-splitting gleam in the eye.

Wood rangers, or Coureurs de bois, went in advance. They hunted, trapped, and bargained with the Indians. They were sturdy, tough, and independent, and gloried in unbelievable hardships. At times their only food was hominy cooked in bear grease. Night shelter was a spray of evergreen branches. Many returned in the spring with riches. Some remained in the deep woods, worse than outlaws.

Les Voyageurs were the boatmen. They could paddle upstream hours on end, stroking the paddle with the beat of a lively song. A portage involved a 100-pound

pack of furs on the back. Both of these groups were fine for the wilderness and friendly with the Indians, but became frightful nuisances to the peaceful habitants in the settlements, with their fighting, drinking, brawling, and swaggering.

The Indians formerly killed enough animals for their requirements, but now, with white man pressure of merchandising, they killed wholesale and indiscriminately for knives, axes, guns, bright colored cloth, ribbons, blankets, cheap and flashy jewelry, -- and lastly, brandy, debauchery, and pride depletion.

Instead of vigorous young Frenchmen taking brides, founding a home, and settling down, they spent much of their time in the back woods, living with the Indians, became squaw men and raised little savages. Hence the true French population grew slowly. Furs led to wars with the Iroquois, the Fox, and eventually the British.

Eagerness of the Coureurs de bois for furs and hardships was matched by the zeal of the missionaries to carry Christianity to the Indians, regardless of costs. Hunger, cold, frost, rivers, lakes, and savage mockery: all had to be faced and conquered. The first missionaries to the Indians of the Great Lakes region were the Recollects, a Franciscan branch. Father Joseph Le Caron went to live with the Hurons near Georgian Bay in 1615. The order was small and dwindled to parish priests and chaplains, being finally replaced by the Jesuits.

The ferocious Iroquois, after many murderous attacks, finally totally destroyed the Huron settlements near Georgian Bay and tortured five missionaries to death. The residual Hurons fled in terror of their lives to the western end of Lake Superior.

After Radisson and Groseillers return in 1660 many traders set out on their own. The Jesuit Father Rene' went along to seek out the Christian Hurons and reached the head of Keweenaw Bay in late autumn of 1660. He remained at the future site of L'Anse, Michigan, for the winter. In the spring of 1661 he portaged across the Keweenaw Peninsula, skirting the South shore of Lake Superior, reaching Chequamegon Bay, now Ashland, Wisconsin. There he establsihed the mission of the Holy Spirit. Then he became lost in the woods and died forthwith.

The Iroquois carried their war of extermination into Michigan, aiming to kill all Frankophile Indians. They reached the Sault and Lake Superior in 1662. The Chippewa and Ottawa put them to flight at the present Iroquois Point.

Father Claude Allouez touched Michigan in 1665 on his way to Western Superior. The first true mission in Michigan was founded in 1668 by Father Jaques Marquette (1637-1675; b. at Laon, France) and Father Claude Dablon at Sault Ste. Marie. They built a chapel at the foot of the rapids, plus a house and palisade. The point was strategic. Chippewa, Ottawa, and passing fur traders were in evidence.

In 1669 Father Marquette was sent to Chequamegon Bay. There the visiting Illinois Indians whispered of the great Missippi. He eagerly gathered all available information and believed "his river" flowed into the Gulf of California. He determined his future day of exploration and conversion of savages along his way. When the Hurons and Ottawas fled eastward from the Sioux, Marquette closed his mission and followed his parishioners. Their wigwams and long houses were erected

on the peninsula jutting down from the North into the Straits of Mackinac. They called the place Michilimackinac (including the Island), and Marquette founded the mission of St. Ignace.

Many other missionaries came and went, but the only missions in Michigan were Sault Ste. Marie and St. Ignace. However, in spite of all the hard work only a little Christianizing was accomplished. The Hurons were interested, but had been nearly exterminated by the Iroquois. The hardships of the journies and the unfriendliness of the coureurs de bois were met with resignation. The king was on their side.

The Indian medicine men, however, were jealous of the new God that might outrank the power of their own medicines and demote their influence in the tribe. If Father Marquette baptized a sick baby or a feeble old woman and death followed, the medicine man would call the rite a spell and the priest a sorcerer. Smallpox was blamed upon the missionary, who regarded his opponent an agent of the devil.

Indian fickleness varied from earnest attention to indifferent fading out, sometimes for an entire season. Indians preferred their way of life. They demonstrated pride in their ancestors and their ancient religion, and resented the word "false" applied to it. One native leader proclaimed, "If the Great Spirit had wanted the Indians to be like white men, he would have made them that way in the beginning." Who could answer such a man? Some Indians accepted Christianity to be on the safer side of a new and powerful spirit. Brandy created murderous savages, in spite of ecclesiastical protests.

However, Marquette and others made natural, historical, and geographical notes, with some additions on anthropology. Such reports were edited in France, known as "Jesuit Relations," in 1670-71. Maps appeared, authored by Fathers Allouez and Dablon, covering the region of Lake Superior, the Sault, the northern part of Lake Michigan and Lake Huron, and the two missions. Thus we owe a debt of informational gratitude to these early missionaries.

Before 1669 no white man had as yet been reported in the Lower Peninsula of Michigan, fearing torture by the Iroquois. General De Tracy finally defeated the Iroquois, and in 1667 a treaty permitted French travel on the lower Great Lakes. The first white man to so set foot was Adrien Joliet, a seasoned trader and explorer. He was sent in the spring of 1669 by the Great Intendant Jean Talon (in charge of commerce, finance, and the courts, and next to the governor) to find a copper mine. Failing this, he was guided back to Quebec via the lower Lakes. Near the future site of Hamilton, Ontario, they met a party of French and Indians going West. The leader was LaSalle, seeking the Ohio River. With him were two Sulpician priests, Fathers De Casson and Galinee. They left La Salle and traveled North at Joliet's urging. They ascended the Detroit River, Lake St. Clair, and the St.Clair River. Near "Detroit" they found a red-faced rock, to which the Indians made sacrifices for safe voyage assurance. The two fathers declared the rock to be an idol. Galinee smashed it with his ax, loaded the fragments into his canoe and threw them overboard into midstream of the Detroit River. God rewarded them that day with a buck and a bear, shot for food!

Reaching Sault Ste. Marie, they were received cautiously by Fathers Dublon and Marquette, who cooly informed the visitors that only Jesuit missionaries had a

place in the West. The guests in turn were critical of their hosts, quoting very little Christianizing of the savages, with a very few baptisms and none but a score of French people attending mass. The guests returned to Montreal via the Ottawa River.

Jean Talon was determined to extend Louis XIV's territory, vs. the ambitions of the Hudson's Bay Co. Late in 1670 he sent Nicolas Perrot to assemble all the tribes of the northern lakes at the Sault the next spring, naming St. Lusson as the representative of the king.

On June 14, 1671, a great ceremony was enacted beside the rapids of the St. Mary's river, called the Pageant of the Sault. A great crowd of Indians on a hill beside a large wooden cross. The gates of the mission opened and a procession aimed toward the hill. First came four missionaries, then Perrot, the interpreter; then St. Lusson, wearing the blue uniform of an army officer. Traders and voyageurs followed, bright colored sashes about their waists. Perrot translated aloud St. Lusson's commission. As the Cross was set up, Frenchmen removed their hats and sang an ancient hymn. A cedar post was planted, bearing a metal plate inscribed with the royal arms of France. A psalm was sung; a prayer was offered for King Louis; and St. Lusson stepped forward.

He raised his right hand and sword, with a piece of sod in his left hand. In a loud voice he took possession in the name of Louis XLV of

"THE GREAT LAKES

MANITOULIN ISLAND

> All the countries, rivers, lakes, and tributaries contiguous and adjacent thereto, discovered and apt to be discovered, bounded by the Northern and Western Seas and by the South Sea, including all of its length and breadth."

The formula was repeated three times. The French muskets were discharged and all shouted "Vive le Roi"

The Indians liked the pageantry and whooped their approval, without any idea of what the whoopla meant. Father Allouez spoke of the glory of God and the power of Louis XIV. St. Lusson delivered an oration in eloquet and martial language. A great bonfire ended the ceremony. Te Deum was sung, thanking God that these poor people were now subjects of so great a king. All signed the official report, including the younger brother of Adrien Joliet, the better known Louis Joliet.

The Indians then ripped off the royal coat of arms, as a strong dose of medicine to bring them future good luck. St. Lusson had no idea how big a bite he had claimed for the king. The entire interior of the continent was actually included. Only the tests of war would make the final decision.

Jean Talon was still hounded for a water route to the Pacific. In 1672 he commissioned Louis Joliet to search for "the Great River -- Michissipi", which discharged into the Sea of California." This appointment was seconded by the new

governor, Count Frontenac. Joliet was an actual native of Canada, born in Quebec in 1645. He gave up training for the priesthood and went to France in 1667 for a year. He accompanied St. Lusson to Sault Ste. Marie in 1671 and engaged in the fur trade. He was bold, brave, intelligent, and well fitted for a dangerous expedition.

In the meantime, Fr. Dublon became superior--general of all Jesuits in Canada and named Fr. Marquette to accompany Joliet, as missionary to Indians contacted on the long journey. Also Marquette had the Mississippi urge, although his Illinois trip was thwarted.

Joliet arrived at St. Ignace in early spring. Fr. Marquette was overjoyed, and both prepared eagerly. They set off in the middle of May in two birch bark canoes. They paddled along the North shore of Lake Michigan and on to Green Bay, then the Fox and Wisconsin Rivers to the Mississippi. Overjoyed at the current of the great stream, they proceeded on downward, stopping now and then at Indian villages. By mid-July they reached a village near the mouth of the Arkansas River. Now they were certain that the Mississippi flowed into the Gulf of Mexico. Therefore returning against the current, Marquette became seriously ill, but on they struggled to the Illinois River, where they stopped briefly at a village of Illinois Indians. Marquette promised he would return, and they pushed on for Lake Michigan, via Des Plaines and the Chicago River. When they reached the mission at the head of Green Bay, Marquette was unable to go further, and stayed there, while Joliet went on to Sault Ste. Marie and spent the winter there. In the spring of 1674 he returned to Quebec, reporting to Frontenac on the success of the expedition.

Marquette's illness kept him at Green Bay till the fall of 1674. He then set out again to redeem his promise to the Illinois village. He became ill again on the way and spent the winter in a cabin beside the Chicago River. Better in the spring of 1675 but still weak, he preached to the Indians around him.

Marquette now felt that his life was limited. He wanted to see the Mission at Sault Ste. Marie again before his death. On the way there, he reached the mouth of the river now known as the Pere Marquette. He asked to be taken ashore. There he died on May 18th, 1675. He was buried near the present site of Ludington, Michigan. His age was 38 years. Two years later a party of Ottawa came upon the grave. They opened it, cleaned the bones, and packed them in a box of birch bark. They carried them to St. Ignace, and there they buried them beneath the altar of the mission chapel.

Joliet had lost his map and had to create a new one for Frontenac from memory. The governor was well satisfied, but never sent Joliet West again, quarreling with the Jesuits and feeling that Joliet was too friendly with the Indians to serve the governor faithfully.

Later LaSalle reached the Gulf of Mexico, in 1682.

II

## MICHIGAN'S BACKWOODS GASTRO-PHYSIOLOGIST--WILLIAM BEAUMONT (1785-1853)

(The Backwoods Physiologist" -- Osler)

William Beaumont was a New England schoolmaster, a trained doctor, and is called the father of gastric physiology. The Russians are usually ahead of us, but here it was an Italian, the Abbe' Spallanzi (1729-1799) who indicated that acid and ferments superseded putrefaction, the old idea. The English physician, William Praut (1785-1850), revealed that acid in the gastric juice was a means to digestion and indicated that there was a further agent to produce liquefaction. Apparently Beaumont took up where Praut left off.

1785 brought birth to Benjamin Dudley (pioneer surgeon) and Daniel Drake (pioneer medical educator) as well we to Beaumont. The latter was born in Lebanon, Connecticut, had a common school education, tilled the soil, and attended church. In 1806 at age 21 he was determined to see the world. His equipment:-- a horse and cutter, a barrel of cider, and 100 bucks. He drove northward in a state of serendipity. He was favorably impressed with Champlain, New York, near The Canadian border and there became the village schoolmaster, teaching for three years, and gradually developing a determination to study medicine. He crossed Lake Champlain to St. Albans, Vermont, and became apprentice and student to a Dr. Benjamin Chandler. He remained two years, preparing drugs, sweeping out the office, and acting as assistant to the doctor.

On the second Tuesday of June, A.D. 1812, the Medical Society of Vermont granted Dr. Beaumont a license to practice medicine. In September of that year he joined the American Army as a surgeon's mate in the War of 1812.

He kept a diary. He describes "surgeons wading in blood," amputating arms and legs, and trepanning skulls, following the battle of Little York. Says Beaumont, "I cut and slashed for 48 hours without food or sleep." He saw much "fever" in the Army not fully diagnosed. Beaumont criticized one regimental surgeon who prescribed emetics and purges, followed by tonics, and lost out of 400 patients. The next regiment omitted these techniques and saved 600 out of 600. He concluded: "no antimonial sudorifics and diaphoretics." He admired Rush but did not always follow him.

Resignation from the Army came in 1816. Beaumont partnered up with Dr. G. Senter at Plattsburgh, N.Y. They practiced and opened up a store, offering to the public a general assortment of drugs, medicines, groceries, dry-goods, and whiskey, and advertised their wares in the Plattsburgh Republican.

After five years Beaumont took a commission as post surgeon and was immediately sent to Fort Mackinac on the Northwest frontier. He still kept a diary.

Fame suddenly plunged. In June of 1822 a half-breed Canadian voyageur, Alexia St. Martin (1707-1880) was standing in front of Astor's American Fur Co.'s store (Ashdower), and in a mixed group a shot-gun went off, accidentally, three feet away from St. Martin's belly. He fell to the ground with a hole in the upper left abdomen, fist size. Dr. Beaumont was summoned. He cleaned out bits of flesh, shot, clothing, -- dressed the wound and prophesied death in 36 hours. But the following day the patient rallied. Beaumont took St. Martin into his home, nursed,

dressed, and fed him on the luxurious fringe of forty dollars a month salary.

In two years Alexis had "recovered," but a large fistula into the stomach remained. The partnership then began in a world-shaking piece of gastric-physiological research.

In 1825 Beaumont's diary reads: "Patient on opposite side and B can look directly into the cavity of the stomach. Suspended flesh, raw and cooked, and other foods on silk threads and probes -- ascertained time required for digestion." This was the year of the first manuscript, which burst upon the world and gave birth to modern gastric physiology.

Beaumont hewed to the line, as opposed to the French physiologist, Magendie (1783-1855), who was a sort of "scientic ragpicker and suffered from wayward deductions." Beaumont was 100 years ahead of Pavlov and his dog- pouches.

St. Martin was not blessed with equipoise, however. He performed many A.W.O.L. stunting episodes, involving marriage, serings, and deaths of his family members. But the repeated joining together of the brain of one and the stomach of the other, in spite of changed posts and much travel, the research continued up to 1833. The fistulous tract was always there to accommodate.

When Beaumont was ordered to Fort Niagra, he took St. Martin with him, and the experiments continued. The first four were formally published in the Medical Recorder, January, 1826, p. 94. He compared silk-string-injected bits within the stomach to vial digested with gastric juice. Therefore the old theories of maceration and fermentation were set aside. Beaumont concluded that gastric juice possessed innate solvent powers. He was the first to draw off and isolate it. Later St. Martin was taken to Plattsburgh. There demonstrations had been planned before the medical public. However, at this time St. Martin took his first unceremonious departure -- for Canada and marriage.

Four years later, when Beaumont was stationed at Fort Crawford on the upper Mississippi, he learned of St. Martin's whereabouts and persuaded him to come to the fort. With much delay and outlay of hard-earned cash, in 1829 Beaumont transplanted St. Martin 2000 miles. He brought good health and a still viewable gastric mucosa. Feverish experimentation lasted for two more years, when St. Martin sailed forth to Canada again. In 1832 he returned, and now a legal contract was drawn up, with Beaumont taking a six-month leave. Both went to Washington on a furlough for research. St. Martin was enrolled as an army sergeant, subject to Beaumont's orders! A child's death took him on a trip to Canada. Then return and a fourth group of experiments followed. The last recorded experiment was in November, 1833.

Beaumont knew his own ignorance of chemistry. He enlisted the aid of Robley Dunglison, professor of physiology, University of Virginia, and Benjamin Silliman, professor of chemistry at Yale. The first made suggestions and the latter said "free HCl".

The eight years of experimentation resulted in a book being published in 1833. The name: "Experiments and Observations on the Gastric Juice and the Physiology of Digestion," by W. Beaumont, Surgeon, U.S.A. It was published at Plattsburgh and remains a classic. (Schwann, later in 1835 identified the ferment as pepsin.)

Some Conclusions:

(1) Appearance and properties of gastric juice.
(2) Active acid is HCl.
(3) Gastric juice and mucus are separate secretions.
(4) Mental disturbances have a profound influence on secretion of gastric juice.
(5) Digestibility of various foods remains one of the greatest contributions to the subject of dietetics.
(6) Chewing is not enough: a solvent is required.

In 1839 Beaumont resigned from the army and went into practice in St. Louis, Missouri. He died in 1853. St. Martin lived to be 83 and died in 1880. His old companions teased him, calling him "the man with a lid on his stomach." This stimulated his periods of rebellion. Much later Claude Bernard of France (1813-1878) complemented Beaumont's work by presenting the details of pancreatic digestion.

The Michigan State Medical Society acquired the fur store in 1947. It was restored to its original form and in 1953 was given to the state as a memorial to Dr. Beaumont. A quick trip to the Mackinac Island Beaumont Memorial will renew one's medical faith.

St. Martin's old age was eased or embittered according as to who gave him money last.

## THE UNIVERSITY OF MICHIGAN ASTRONOMY DEPARTMENT AND OBSERVATORY

HAZEL M. LOSH, PH.D., EMERITUS PROFESSOR OF ASTRONOMY

(Dr. Losh has long been one of the U.M.'s most popular professors, far and wide not only for her interesting classes but also for her infectious delight in football and other sports!)

(This talk was given before the Society on October 30, 1969.)

By an act of Congress passed in 1804, one township of land in the prospective Territory of Michigan was set apart for the support of a seminary of learning. Twenty-two years later Congress enlarged the grant to two townships. In the year 1817, the Governor and Judges of the Territory enacted a bill drawn by Augustus P. Woodward, Presiding Judge, whereby was established the "Catholepistemiad or University of Michigania". This statute decreed that the University should be composed of thirteen professorships, the didactors or professors to be appointed by the governor. Two didactors at salaries of $12.50 each were appointed, and a primary school and a classical academy were established in Detroit; but in 1821 the act of 1817 was repealed, and a new act was passed for the establishment at Detroit of the University of Michigan to be managed by twenty-one trustees. This board was legislated out of office by the Michigan statute of March 18, 1837, entitled "An Act to provide for the organization and overnment of the University of Michigan",

and passed only two months after the admission of the State into the Union by Congress. As closely as possible the German idea of a university was followed instead of imitating Yale and Harvard, themselves copies of English institutions. The business affairs were to be managed by a Board of Regents appointed by the governor and approved by the Senate. Two days after the passage of the organizing act the legislature adopted another statute locating the University at Ann Arbor.

The Department of Astronomy has a long and enviable record. A "didaxia of astronomia" was among the thirteen, proposed in the Act of 1817. A professorship of natural philosophy was provided for in Ann Arbor in 1837, and in the first published announcement of the University in 1843-44, George Palmer Williams, one of the two members of the original faculty, appeared as Professor of Natural Philosophy and Mathematics. Olmsted's Astronomy was listed with the work required of Juniors. In the Catalog of 1844-45, Astronomy was first listed as a separate subject, given in the third term of the Junior year. Members of the class of 1849, a half century after graduation, boasted that they were "the boys who calculated eclipses of the moon from the desk of Williams, the Paternal". It is said that Williams excelled as a teacher of Astronomy and in spite of meager appliances excited much enthusiasm.

In August, 1852, Henry P. Tappan, Union '25, was elected President of the University. It has been customary to attribute to this illustrious man whatever eminence the University attained in its early career. His administration began the history of the University as an educational power in Michigan and in the northwest. If one contrasts the first ten years of Michigan with the first ten of any other state University, it was successful beyond all precedent. So it was with Astronomy.

In his inaugural address, President Tappan outlined plans for developing a university in the highest sense of the word, and appealed for assistance. In the audience was Henry N. Walker of Detroit, who inquired what he might do. The President proposed a campaign in Detroit to secure funds for an observatory. This was a period when many observatories were being planned and built in the United States, due to several astronomical phenomena occurring between 1830 and 1850 attracting the public's interest: Great Meteor Shower of 1833; return of Halley's Comet in 1835; first distance of a star measured in 1837; first photograph of the Moon in 1840; Great Comet of 1843; discovery of Neptune in 1846; first photograph of star in 1850. This combined with Tappan's personal interest in Astronomy led to the proposition that funds be secured for an Observatory at the University. The first meeting to promote the project was held at the Michigan Exchange, Detroit, December 29, 1852. There President Tappan made an appeal, and $7000 was subscribed. General Lewis Cass, Henry P. Baldwin, later Governor of Michigan, Senator Zachariah Chandler, and Henry N. Walker were among the twenty-eight prominent citizens who responded on this occasion. The Catalog for 1852-53 announced that $10,000 had been subscribed for the Observatory.

Henry Walker accompanied Tappan to New York where a contract was made with Henry Fitz for a refracting telescope with an objective of at least twelve inches in diameter. This was the first large telescope to be constructed entirely in the United States, and was to be the third largest refractor in the world (Harvard College and the National Observatory at Pulkowa, Russia, each had a giant

refractor fifteen inches in diameter). Tappan went on to Europe to visit observatories and to secure additional equipment for Michigan. In Berlin he met Professor Encke, Director of the Royal Observatory, who recommended the instrument-makers, Pistor and Martins, of Berlin. From that firm, on July 15, 1853, Tappan ordered a meridian circle (about $3200) with the understanding that Encke and particularly his young assistant, Franz F.E. Brünnow, would supervise its construction and approve it before shipment. It was to be completed by May 1, 1854. He also purchased a sidereal clock from M. Tiede of Berlin, thoroughly tested by Brünnow and pronounced an excellent piece of workmanship. When told of the purchase of the Fitz refractor, Brünnow commented: "You will have one of the first observatories in the world", to which President Tappan proudly replied: "Indeed, I contemplate nothing less, and I cannot but be sanguine of the results we shall arrive at under the transparent and serene skies of Michigan, when we shall have provided an Astronomer worthy of the Observatory we are thus furnishing". Tappan conceived the idea of inviting Brünnow to become the first Director. He consulted American astronomers, and they bore unanimous agreement of his superb qualifications. Some advised against appointing foreign professors to teach in American universities, but Tappan overruled the objections. He claimed that "the republic of letters overleaps national boundaries", and that if the growth of a finer native scholarship could be fostered by the importation of an eminent foreigner," "even a peculiar national interest" would be served. So Brünnow was invited.

Franz Friedrich Ernst (Ph.D. Berlin '43) was thirty-three at the time he took the position of Professor of Astronomy and Director of the Observatory at Ann Arbor in 1854. He was a native of Berlin, and the son of a privy councilor of state. In the University of Berlin he was the favorite pupil of Encke and one of the notable group - including Galle, Bremiker, and D'Arrest - who had gathered around the great astronomer. He was present when Neptune was first recognized by Galle, and his notification of the discovery was one of the first to reach England. After serving as assistant to Encke, he was in 1847 appointed Director of Bilk Observatory, and in 1851 he returned to the Royal Observatory, succeeding Galle as First Assistant to the Director. He made noteworthy contributions on the subjects of minor planets and comets.

Brünnow reached Ann Arbor in July, 1854. That fall, the Observatory building was completed, the transit mounted, and observations were begun. With the arrival of the meridian circle in September, 1854, he tested it for systematic errors, and according to one reviewer his published tables of corrections computed for every fifth degree in position, is perhaps not to be surpassed for thoroughness by anything similar in the whole range of astronomical literature. There was much discussion about the selection of a site, whether the Observatory should be placed in the center of the campus or on a hilltop outside the limits of Ann Arbor. An early catalog contains this statement about the Observatory: "It is situated half a mile from the University grounds on a hill 150 feet above the Huron river, from which is presented one of the most charming views of the country". The new telescope arrived in Ann Arbor in November, 1857, and in December was ready for use. The building had cost about $22,000. Citizens of Detroit contributed about $15,000, and for many years the name "Detroit Observatory" was used in recognition of their generosity. President Tappan frequently referred to it as an Observatory of the first rank and said that he knew of no other instance of one of its class erected at so little cost. The main expense was due to the instruments and as little as possible was spent on the building. In his well known "Historic Statement" just at the close

close of his administration he wrote: "I cannot speak of the Observatory without emotion. No one will deny that it was a creation of my own".

The Observatory has always maintained the tradition, established in Brünnow's administration, that training future astronomers is one of its principal functions. Criticism accompanied Brünnow's term. Students complained they could not understant his lectures, but he kept steadily along his course.

James Craif Watson ('57, Ph.D. Leipzig '70, LL.D. Columbia '77) was one of the students who listened to Brünnow's lectures, Watson enrolled as a Freshman in 1853, and completed his bachelor's degree at the age of nineteen. Not only was he a brilliant student under the able tutelage of Brünnow, but after Brünnow's resignation in 1859 to go to Dudley Observatory as Associate Director, Watson continued his outstanding contributions as Professor of Astronomy and Director of the Observatory. Discovery of twenty-two asteroids was credited to him. Watson's "bagging asteroids" became a well known phrase. An eastern newspaper commented: "Discovering asteroids is getting to be an every-day affair. One of the professors in Ann Arbor, Michigan, just received a gold medal from some European society for discovering nine of them. They are not of much account and gold medals might be more worthily bestowed." Orbit computations and eclipse expeditions consumed much of his time. He was one of the judges of instruments of precision at the Philadelphia Centennial Exposition in 1876, and was present when Alexander Graham Bell demonstrated his newly invented telephone. One report states "Most of the routine transmitting was done by Professor Watson of Ann Arbor, whose voice appeared to transmit most readily". Many are the stories and reports of Watson's tenure at the University. The students nicknamed him "Tubby P" because of his rotund form and ruddy face. Watson resigned February 7, 1879 to become Director of the Washburn Observatory at Wisconsin, because of greater career promise there.

On March 25, his successor Mark Walrod Harrington ('68, A.M. '71, LL.D. '94) was appointed. Harrington had been connected with the University in one way or another from 1868 on. He had been Assistant Curator of the Museum, and a teacher of many subjects. The greater part of Harrington's published contributions were in the field of Meteorology rather than Astronomy. Harrington left the University in 1891 after numerous previous leaves of absence due to ill health.

In 1892, Asaph Hall, Jr. (Harvard) was appointed Director of the Observatory. Although not Michigan trained himself, his father, Asaph Hall, Sr., had studied for a while under Brünnow, and later at the United States Naval Observatory was the discoverer of the two celebrated satellites of Mars. The new Director took an immediate interest in the condition of the instruments, and made extensive observations with the meridian circle. In 1905, he returned to the Naval Observatory, where he had served previously.

He was followed at Michigan by William Joseph Hussey ('89, Sc.D. Brown '12), who probably did more for the Department than any other individual after Tappan and Brünnow. He immediately began plans for a new telescope, as the meridian circle (1854) and the 12-inch refractor (1857) were becoming obsolete in the light of the new researches in Astronomy. Spectroscopy was rapidly becoming the Astronomy of the day, and he recognized that modernization of the Observatory must include provision for the study of stars by the spectroscopic method. He also

foresaw the reflecting telescope as the big instrument of the future. In June, 1906, the Regents made the first appropriation. Subsequent appropriations were made, which resulted in the completion of a 37 1/2-inch reflecting telescope in January, 1911. In 1907, Ralph Hamilton Curtiss (California '01, Ph.D. '05) was summoned to Michigan to design and set up a spectrograph for use with this instrument. At the time of the installation of this telescope, it was ranked as the third largest of its kind in the world. It has been in continuous use since 1911, and is located in the larger dome of the original Observatory.

An Additional contribution of Hussey was the establishment of the Lamont-Hussey Observatory at Bloemfontein, South Africa, for the discovery and measurement of southern double stars. Hussey had become interested in northern doubles while at the Lick Observatory, so when he came to Michigan he wished to continue this dream, but felt that the southern sky was the promising field. The details this project make a story of itself, and cannot be given here.

Hussey also conceived the idea and plans for an astronomy laboratory on the roof of the new Angell Hall Building, completed in 1926, and used by the Astronomy classes at the present time. A ten-inch refractor and a fifteen-inch reflector are housed there.

After Hussey's death in 1926, Ralph Hamilton Curtiss was appointed Director of the Observatory, and continued in that capacity until his death in 1929. As mentioned previously, he had been brought here to direct the spectrographic program.

In 1930, Heber Doust Curtis ('92, Ph.D. Virginia '02, Sc.D. Hon. Pittsburgh '20) was invited here from the Allegheny Observatory to become Director, with the express purpose of designing and building a large telescope for the University of Michigan. The 12-inch refractor set up in 1857, then the third largest in the world, the 37 1/2-inch reflector, set up in 1911, at that time also the third largest, no longer could compete with the large instruments being constructed in various parts of the country. Consequently, Michigan felt that she should do something about it. Again the idea dates back to Hussey, and gaining momentum in the late twenties, Curtis was asked to come to Michigan for this particular job. He spent his first years on plans, and on July 13, 1936, a large piece of pyrex (99 inches in diameter) was poured at the Corning Glass works in New York (a gift of the McGregor Fund in Detroit). After the cooling process, it was shipped to Ann Arbor and stored at the Observatory with the hopes that additional financial support for its completion would be forthcoming. However, more difficulties in the form of World War II and increasing prices postponed completion prospects, and in 1948, it was given to the McGregor Fund Board, by whom it had been originally financed. This again is a story of itself, and cannot be included here. Curtis died in 1942, and during the war period the Observatory ran itself without the guidance of a firm hand.

The 1930's saw the beginning of the McMath-Hulbert Observatory for solar research located at lake Angelus near Pontiac. The history of this branch will not be treated here.

In 1946, Leo Goldberg (Harvard, B.S. '34, M.A. '37, Ph.D. '38) was appointed Director and continued in that capacity until 1960. During that period, plans